MICROART ARCHIVE FORMAT

30 April 1998

The ID record contains information on station location, date and time of release. Both the hour of observation and the actual time of release (hour and minute) are entered. The hour of observation allows observations to be readily assigned for synoptic analyses and for ease of selection of specific synoptic hours for users. For synoptic hours (H = 00, 06, 12, 18) the hour of observation will be H whenever the actual release time is H-30 to H+29 (e.g., the synoptic hour will be 12 when the actual release is from 1130 to 1229 UTC). For regular synoptic observations the actual release should occur as close as possible to H-30. For non-synoptic hours, the hour of observation will be the nearest whole hour, H-30 to H+29 (e.g., enter 10 when the actual release is from 0930 to 1029 UTC). Flight and equipment information are entered in the ID record and include ascension number, observer initials, type of radiosonde, baroswitch or radiosonde serial number and manufacturer, types of sensing elements, balloon weight, age and manufacturer, reason for flight termination, the number of times the flight was recomputed and the version of software used to reduce the data. The number of recomputes informs NWS management of potential problems with data reduction and communications software. Sky condition, present weather, surface wind and type of corrections applied to data elements are also recorded in the ID record.

The data record is repeated for each level of the sounding and contains the ascension number and the elapsed time since release in minutes and seconds. The elapsed time is used for such purposes as micro-scale research projects, to provide more accurate ground truth for satellite data, and to compute balloon ascension rates used in the data editing process. The data record also contains pressure, height, relative humidity, dew-point depression, and wind speed and direction. The record contains an indicator specifying the reason for selection of the level such as the level being significant, mandatory, the end of missing or doubtful strata, wind data only, etc. A signal quality flag and an element quality flag are provided for each element to indicate system performance and automated or manual quality control performed at the station. When agencies require that wind data be observed at specific intervals during the flight (1-minute, .5-minute, 1000 ft., etc.), wind data are entered in the data record according to elapsed time and interpolated height and pressure. If the wind data elapsed time does not correspond to a thermodynamic elapsed time, the temperature and humidity data elements are 9 filled for that particular record.

Standard Archive Header Format

Observation Identification Record

RECORD POSITION	ELEMENT NAME	CODE DEFINITIONS AND REMARKS
1	STN-IND	STATION NUMBER INDICATOR - This field contains an indicator specifying the type of station number in the next field: 0 = WBAN NUMBER 1 = WMO NUMBER 2 = AIR FORCE AUGMENTED WMO NUMBER 3 = SHIP CALL SIGN 4 = MOBILE UNIT CALL SIGN
2-9	STN NUM	STATION NUMBER - The number assigned to the station according to the numbering system specified in record position 1. Numbers should be right justified with leading blanks, ship CALL signs left justified with trailing blanks. NWS stations must enter WBAN number. If the number is missing, enter "00000000".
10-14	LAT	LATITUDE - The station latitude in degrees and minutes. The last character is "N" or "S" as appropriate. When unknown, this field contains "9999N".
15-20	LONG	LONGITUDE - The station longitude in degrees and minutes. The last character is "E" or "W" as appropriate. When unknown, this field contains "99999E".
21-24	ELEV	ELEVATION - The height of the launch site in whole meters.
25-28	YEAR	YEAR - The 4-digit year expressed at the hour of observation (UTC).
29-30	MONTH	MONTH - The numeric month expressed at the hour of observation (UTC).
31-32	DAY	DAY - The numeric day expressed at the hour of observation (UTC).

33-34	HOUR	HOUR - The hour (24-hour clock) of observation (UTC). For synoptic hours (H=00, 06, 12, 18) the hour of observation will be H whenever the actual release time is H-30 to H+29. For example, the synoptic hour will be entered as 12 when the actual release is from 1130 to 1229 UTC. For regular synoptic observations the actual release should occur as close as possible to H-30. For non-synoptic hours, the hour of observation will be the nearest whole hour, H-30 to H+29 (e.g. the hour is entered as 10 when release is 0930 to 1029 UTC).
35-38	RELSE TIME	TIME OF ACTUAL RELEASE - The hour and minute UTC (24-hour clock) of the actual release time.
39-42	ASCN NUM	ASCENSION NUMBER - The ascension number for the year. The first release on or after Jan 1 will be numbered 0001. Ascension numbers are right-justified with leading zeros.
43-46	OBSVR INIT	OBSERVER INITIALS - The initials of the first and last name of the observer.
47-49	DTA RDC SYS	DATA REDUCTION SYSTEM - The type of data reduction system used at the site.

001 = MANUAL
002 = TIME-SHARE
003 = NOVA MINI COMPUTER
004 = MINI-ART
005 = MICRO-ART
007 = MARWIN, MRS
008 = MSS
009 = LAMS
010 = ASAP
011 = MV 7800
012 = AIR MET REASEARCH RAWIN SYSTEM
013 = VIZ WO-9000 Meteorological Processing System

50-52	SONDE MAN	SONDE MANUFACTURER - The manufacturer of the Sonde in use.

001 = VIZ

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002 = VAISALA
003 = SPACEDATA
004 = AIR
005 = ATEAR
-----------------------------------------------------------------
 53-55      SONDE TYP   SONDE TYPE - The type of Sonde used at
                        the station.

001 = VIZ J031
002 = VIZ ACCU-LOC
003 = VIZ A
004 = VIZ B
005 = VIZ MSS
006 = SPACEDATA-TRANSPONDER
007 = SPACEDATA-ARTSONDE
008 = SPACEDATA-MSS
009 = VAISALA RS80(version unknown)
010 = VIZ B mod. 1492-520 (1680/403MHz)- TRANSPONDER
011 = AIR INTELLISONDE
012 = VIZ Mark II MICROSONDE
013 = VIZ C mod. 1492-530 (1680 MHz) Accu Lok 014-019 reserved
020 = VAISALA RS80-15N Navy MRS (OMEGA Navaid windfinding)
021 = VAISALA RS80-15P (OMEGA Navaid windfinding)
022 = VAISALA RS80-15L (Loran-C Navaid windfinding)
 ...
 ...
 ...
038 = VAISALA RS80-56 (Radio Direction Finding(RDF), 1680 MHz)-
      pressure cell
039 = VAISALA RS80-57 (RDF, 1680 MHz)
040-044 reserved
 ...
 ...
 ...
489 = VIZ B-2 (RDF, 1680 MHz) capacitance aneroid pressure sensor
-----------------------------------------------------------------
  56        SON/BAR     SONDE/BAROSWITCH NUMBER INDICATOR - An
            IND         indicator specifying the type of number
                        in the next field.

0 = SONDE SERIAL NUMBER
1 = BAROSWITCH NUMBER
-----------------------------------------------------------------
57-76      SON/BAR     SONDE/BAROSWITCH - The Sonde serial
            NUM         number or the Baroswitch number right
                        justified in the field, with leading
                        blanks .  This "number" probably will
                        include non-numeric characters.
-----------------------------------------------------------------
  77-79      HUM TYP    HUMIDITY TYPE - Type of humidity element
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used in the system.

001 = Lithium Chloride Hygristor
002 = 1960's Carbon Hygristor
003 = 1980's Carbon Hygristor
004 = Humicap
005 = H-Humicap
006 = VIZ Mark II carbon hygristor

80-82	TEMP TYP	TEMPERATURE TYPE - Type of temperature element used in the system.

001 = Rod Thermistor
002 = Bead Thermistor
003 = Chip Thermistor
004 = Capacitive Bead

83-85	PRESS TYP	PRESSURE TYPE - Type of pressure element used in the system.

001 = Baroswitch
002 = Transducer - oven controlled
003 = Transducer - non-oven controlled
004 = Derived (Transponder)

86-88	TRK TYP	TRACKING TYPE - The type of tracking system.

001 = 72-2
002 = SCR-658
003 = WBRT-57
004 = WBRT-60
005 = GMD-1
006 = GMD-1A
007 = GMD-1B
008 = GMD-5
009 = OMEGA
010 = LORAN
011 = ART-1
012 = ART-1R
013 = ART-2
014 = ART-2R
015 = MDS
016 = MSS RANGING
017 = RADIO THEODOLITE
018 = ATIR

89	TRNSP	TRANSPONDER - is a transponder used.

0 = No
1 = Yes

90-92	BAL MAN	BALLOON MANUFACTURER - The manufacturer of the balloon.

001 = KAYSAM
002 = WEATHERTRONICS
003 = KKS
004 = Totex

999 = Other

93-96	BAL WGT/ TYP	BALLOON WEIGHT/TYPE - Nominal weight of the balloon in grams or balloon type as follows:

0001 = GP26
0002 = GP28
0003 = GP30
0004 = HM26
0005 = HM28
0006 = HM30
0007 = SV16
0008 = Other

97-98	BAL AGE	BALLOON AGE - Age of the balloon in months.

99	TRN REG	TRAIN REGULATOR - Was a train regulator used

N = No
Y = Yes

100	PBL LGT	PIBAL LIGHT - Was a PIBAL light used

N = No
Y = Yes

101	PBL TYP	PIBAL TYPE - PIBAL wind equipment type according to WMO Code Table 0265.

0 = Pressure instrument associated with wind-measuring equipment
1 = Optical Theodolite
2 = Radio Theodolite
3 = Radar

102-103	REASON TERMN	REASON FOR TERMINATION - Reason for termination of the flight:

01 = Balloon burst
02 = Balloon forced down by icing
03 = Leaking or floating balloon
04 = Weak or fading signal
05 = Battery failure
06 = Ground equipment failure
07 = Signal interference
08 = Radiosonde failure
09 = Excessive missing data
10 = Other

104	NUM RCP	RECOMPUTES - The number of times this

flight has been recomputed.

105-113 CLOUDS-WX — CLOUDS AND WEATHER - The observation of the clouds and weather at the time of release. The field is of the form $N_h C_L h C_M C_H WWWW$, where:

N_h = The amount of low or mid-level clouds present according to WMO Code Table 2700.

0 = 0 okta (tenths)
1 = 1 okta (1/10) or less, but not zero
2 = 2 oktas (2/10-3/10)
3 = 3 oktas (4/10)
4 = 4 oktas (5/10)
5 = 5 oktas (6/10)
6 = 6 oktas (7/10-8/10)
7 = 7 oktas (9/10) or more, but not overcast
8 = 8 oktas (10/10)
9 = Sky is obscured by fog and/or other meteorological phenomena
- = Cloud cover is indiscernible for reason other than "9" or observation not made. The WMO code figure "/" must be converted to "-".

C_L, C_M, C_H = The cloud type according to WMO Code Tables 0509, 0513, and 0515. Code figure "/" must be converted to "-".

h = WMO Code Table 1600 for the height above ground of the base of the lowest cloud seen. Code figure "/" must be converted to "-".

WW = Present weather according to WMO Code Table 4677. Up to two types of present weather or obscurations may be entered. If present weather is not observed,enter "////" in this field (WWWW).

114-116 SFCWND DIR — SURFACE WIND DIRECTION - The direction of the surface wind at time of release in whole degrees.

117-119 SFCWND SPD — SURFACE WIND SPEED - The speed of the surface wind at time of release in meters per second to the nearest 0.1 meter per second. Do not enter the decimal point; 12.3 meters per second = 123.

120-122 WIND AVE INT — WIND AVERAGING INTERVAL - The interval of time or height over which the wind is derived.

000 = None (instantaneous)
001 = Two mins. to 14km (MSL), four mins. above 14km (MSL).
      (Pre-1990 FMH Standard, NWS)
002 = Post-1989 FMH Standard
003 = 20 seconds to 15K ft., 60 seconds above 15K ft.
004 = 30 seconds up to 2500m AGL,
      45 seconds up to 5000m AGL,
      60 seconds up to 7500m AGL,
      75 seconds up to 10 km AGL,
      90 seconds up to 15 km AGL,
     105 seconds up to 20 km AGL,
     120 seconds above 20 km AGL.
005 = Four mins. for the entire flight
006 = Two mins. for the entire flight
007 = Variable

123-134	CORTYP	TYPE OF CORRECTION - The type of correction applied to individual data elements by automated systems or observers.

123-124	CORTYP-P	PRESSURE CORRECTIONS

00 = No correction applied
01 = NASA temperature correction
02 = EMCWF temperature correction
...
...
...
88 = Unknown

125-126	CORTYPE-Z	HEIGHT CORRECTIONS

00 = No correction applied
01 = Local gravity correction
02 = Standard gravity correction
...
...
...
88 = Unknown

127-128	CORTYP-T	TEMPERATURE CORRECTIONS

00 = No correction applied
01 = NASA radiation correction
02 = EMCWF radiation correction
03 = NMC radiation correction
04 = Vaisala RSN-93 solar and infrared radiation correction
...

...
...
11 = NASA lag correction
12 = EMCWF lag correction
13 = NMC lag correction
...
...
...
21 = NASA radiation and lag correction
22 = EMCWF radiation and lag correction
23 = NMC radiation and lag correction
...
...
...
88 = Unknown

129-130 CORTYP-H HUMIDITY CORRECTIONS

00 = No corrections applied
01 = NASA lag correction
02 = EMCWF lag correction
03 = NMC lag correction
...
...
...
88 = Unknown

131-132 CORTYP-TD DEW POINT CORRECTIONS

00 = No corrections applied
01 = NASA lag correction
02 = EMCWF lag correction
03 = NMC lag correction
...
...
...
88 = Unknown

133-134 CORTYP-W WIND CORRECTIONS

00 = No corrections applied
01 = Elevation angle correction
02 = Ranging correction
...
...
...
88 = Unknown

NOTE: At this writing, the types of corrections which may be applied to the data have not been determined. Input from various

agencies will be used to develop initial codes and correction types.

135-144	SOFT VER	SOFTWARE VERSION - The version of software in use with the specified recording system. Enter the software version left-justified with trailing blanks.
145-160	RES FLD	RESERVED FIELD - Leave blank

DATA RECORD

RECORD POSITION	ELEMENT NAME	CODE DEFINITIONS AND REMARKS
1-4	ASCN NUM	ASCENSION NUMBER - The ascension number for the year. The first release on or after Jan 1 will be numbered 0001.
5-9	ELPSD TIME	ELAPSED TIME - The time in minutes and seconds (mmmss) since the actual release time.
10-15	PRESS	PRESSURE - Atmospheric pressure at the current level in hundredths of hectopascals (0.01 millibars).
16-20	HGT	HEIGHT - Geopotential height of the pressure level in whole geopotential meters. (MSL)
21-24	TEMP	TEMPERATURE - Dry-bulb temperature to the nearest 0.1 degree Celsius.
25-28	REL HUM	RELATIVE HUMIDITY - The relative humidity to the nearest 0.1 percent.
29-31	DPDP	DEW POINT DEPRESSION - The dew-point depression to the nearest 0.1 degree Celsius
32-34	WIND DIR	WIND DIRECTION - The wind direction to the nearest whole degree.
35-38	WND SPD	WIND SPEED - Wind speed to the nearest 0.1 meter per second.
39-40	TYP LEVEL	TYPE OF LEVEL - The reason for selection of the level:

00 = High resolution data sample
01 = Within 20 hectopascals (mb) of the surface
02 = Pressure less than 10 hectopascals (mb)
03 = Base pressure level for stability index
04 = Begin doubtful temperature, altitude data
05 = Begin missing data (all elements)
06 = Begin missing relative humidity data
07 = Begin missing temperature data
08 = Highest level reached before balloon descent because of icing or turbulence.

09 = End doubtful temperature, altitude data
10 = End missing data (all elements)
11 = End missing relative humidity data
12 = End missing temperature data
13 = Zero degree crossing for the RADAT
14 = Mandatory pressure level
15 = Operator added level
16 = Operator deleted level
17 = Balloon re-ascended beyond previous highest level
18 = Significant relative humidity level
19 = Relative humidity level selection terminated
20 = Surface level
21 = Significant temperature level
22 = Mandatory temperature level
23 = Flight termination level
24 = Tropopause
25 = Aircraft report
26 = Interpolated (generated) level
27 = Mandatory wind level
28 = Significant wind level
29 = Maximum wind level
30 = Incremental wind level (e.g., 1-minute, fixed regional)
31 = Incremental height level (generated
 ...
 ...
 ...
40 = Significant thermodynamoic level (reason for selection unknown)

41-43	SQP	SIGNAL QUALITY - Signal quality for the element(Pressure) expressed as a percentage of individual samples accepted.
44-46	SQT	(Temperature)
47-49	SQU	(Humidity)
50-52	SQD	(Dew-point temperature)
53-54	EQET	ELEMENT QUALITY FLAGS - These fields contain the results (Elapsed Time) of any quality control procedures for identifying suspect and doubtful individual elements:
55-56	EQP	(Pressure/Ranging)

00 = Element is correct
01 = Element is suspect

57-58	EQH	(Height)

02 = Element is doubtful
03 = Element failed QC checks
04 = Replacement value (correction)

59-60	EQT	(Temperature)

05 = Estimated value
06 = Observer edited value
09 = Element not checked

61-62	EQU	(Humidity)
63-64	EQD	(Dew-point depression)
65-66	EQWD	(Wind direction)
67-68	EQWS	(Wind speed)
69-80	RES FLD	RESERVED FIELD Leave Blank -

The data records are repeated as many times as necessary to record all levels of the flight. All fields must be right-justified (least significant digit in the rightmost position) unless specified otherwise. All missing fields must be 9 filled unless specified otherwise. Do not enter decimal points. The decimal point is implied by the field position.